



EXHIBIT A
PENDING CLAIMS
(SERIAL NO. 08/951,188; 4200.000200)

110. (Amended) An isolated nucleic acid molecule comprising a nucleic acid sequence that encodes:

- (a) a polypeptide having the amino acid sequence of SEQ ID NO:2; or
- (b) a polypeptide that comprises a contiguous sequence of at least 16 amino acids from SEQ ID NO:4, of at least 20 amino acids from SEQ ID NO:45, of at least 20 amino acids from SEQ ID NO:47 or of at least 125 amino acids from SEQ ID NO:50.

111. The isolated nucleic acid molecule of claim 110, comprising a nucleic acid sequence that encodes a polypeptide having the amino acid sequence of SEQ ID NO:2.

112. The isolated nucleic acid molecule of claim 111, comprising a nucleic acid sequence that has the nucleotide sequence from position 115 to position 1327 of SEQ ID NO:1.

113. (Amended) An isolated nucleic acid molecule comprising a nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least 16 amino acids from SEQ ID NO:4, of at least 20 amino acids from SEQ ID NO:45, of at least 20 amino acids from SEQ ID NO:47 or of at least 125 amino acids from SEQ ID NO:50.

116. (Amended) The isolated nucleic acid molecule of claim 113, comprising a nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least 25 amino acids from SEQ ID NO:4, SEQ ID NO:45 or SEQ ID NO:47.

117. (Amended) The isolated nucleic acid molecule of claim 116, comprising a nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least about 30 amino acids from SEQ ID NO:4, SEQ ID NO:45 or SEQ ID NO:47.

118. (Amended) The isolated nucleic acid molecule of claim 117, comprising a nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least about 40 amino acids from SEQ ID NO:4, SEQ ID NO:45 or SEQ ID NO:47.

119. (Amended) The isolated nucleic acid molecule of claim 118, comprising a nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least about 50 amino acids from SEQ ID NO:4, SEQ ID NO:45 or SEQ ID NO:47.

120. (Amended) The isolated nucleic acid molecule of claim 119, comprising a nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least about 60 amino acids from SEQ ID NO:4, SEQ ID NO:45 or SEQ ID NO:47.

121. (Amended) The isolated nucleic acid molecule of claim 120, comprising a nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least about 70 amino acids from SEQ ID NO:4, SEQ ID NO:45 or SEQ ID NO:47.

122. (Amended) The isolated nucleic acid molecule of claim 121, comprising a nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least about 80 amino acids from SEQ ID NO:4, SEQ ID NO:45 or SEQ ID NO:47.

123. (Amended) The isolated nucleic acid molecule of claim 122, comprising a nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least about 90 amino acids from SEQ ID NO:4, SEQ ID NO:45 or SEQ ID NO:47.

124. (Amended) The isolated nucleic acid molecule of claim 123, comprising a nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least about 100 amino acids from SEQ ID NO:4, SEQ ID NO:45 or SEQ ID NO:47.

125. (Amended) The isolated nucleic acid molecule of claim 124, comprising a nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least 125 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

126. The isolated nucleic acid molecule of claim 125, comprising a nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least about 150 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

127. The isolated nucleic acid molecule of claim 126, comprising a nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least about 200 amino acids from SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

128. The isolated nucleic acid molecule of claim 127, comprising a nucleic acid sequence that encodes a polypeptide that comprises the amino acid sequence of SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

129. The isolated nucleic acid molecule of claim 128, comprising a nucleic acid sequence that encodes a polypeptide that comprises the amino acid sequence of SEQ ID NO:4.

130. The isolated nucleic acid molecule of claim 128, comprising a nucleic acid sequence that encodes a polypeptide that comprises the amino acid sequence of SEQ ID NO:45.

131. The isolated nucleic acid molecule of claim 128, comprising a nucleic acid sequence that encodes a polypeptide that comprises the amino acid sequence of SEQ ID NO:47.

132. The isolated nucleic acid molecule of claim 128, comprising a nucleic acid sequence that encodes a polypeptide that comprises the amino acid sequence of SEQ ID NO:50.

133. The isolated nucleic acid molecule of claim 113, wherein said nucleic acid sequence is operatively positioned under the control of a promoter.

134. The isolated nucleic acid molecule of claim 133, further defined as a recombinant vector.

135. The isolated nucleic acid molecule of claim 133, comprised within a recombinant host cell.

136. The isolated nucleic acid molecule of claim 113, wherein said nucleic acid sequence is operatively attached to a second coding region that encodes a selected peptide or protein sequence so that said isolated nucleic acid molecule encodes a fusion protein.

137. (Amended) An isolated nucleic acid molecule comprising a nucleic acid sequence that encodes a P-TEFb large subunit protein, wherein said P-TEFb large subunit protein binds to a P-TEFb kinase subunit protein to form a P-TEFb enzyme complex that promotes transcription elongation and wherein said nucleic acid molecule comprises the nucleotide sequence of:

the coding sequence of a cDNA molecule present in a nucleic acid library, wherein the cDNA molecule hybridizes to a probe having the sequence of the complement of SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48 under

conditions of high stringency comprising hybridization in 50% formamide, 5× Denhardt's solution, 5× SSC, 25 mM sodium phosphate, 0.1% SDS and 100 µg/ml of denatured salmon sperm DNA at 42°C for 16 h followed by 1h sequential washes with 0.1× SSC, 0.1% SDS solution at 60°C.

138. The isolated nucleic acid molecule of claim 137, wherein the nucleic acid molecule comprises a nucleotide sequence of at least 21 contiguous nucleotides present in SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48.

139. The isolated nucleic acid molecule of claim 138, wherein the nucleic acid molecule comprises a nucleotide sequence of at least 30 contiguous nucleotides present in SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48.

140. The isolated nucleic acid molecule of claim 139, wherein the nucleic acid molecule comprises a nucleotide sequence of at least 40 contiguous nucleotides present in SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48.

141. The isolated nucleic acid molecule of claim 140, wherein the nucleic acid molecule comprises a nucleotide sequence of at least 50 contiguous nucleotides present in SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48.

142. The isolated nucleic acid molecule of claim 141, wherein the nucleic acid molecule comprises a nucleotide sequence of at least 60 contiguous nucleotides present in SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48.

143. The isolated nucleic acid molecule of claim 142, wherein the nucleic acid molecule comprises a nucleotide sequence of at least 72 contiguous nucleotides present in SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48.

144. The isolated nucleic acid molecule of claim 137, wherein the nucleic acid molecule has the nucleotide sequence of SEQ ID NO:44.

145. The isolated nucleic acid molecule of claim 137, wherein the nucleic acid molecule has the nucleotide sequence of SEQ ID NO:46.

146. The isolated nucleic acid molecule of claim 137, wherein the nucleic acid molecule has the nucleotide sequence of SEQ ID NO:49.

147. The isolated nucleic acid molecule of claim 137, wherein the nucleic acid molecule is up to about 10,000 basepairs in length.

148. The isolated nucleic acid molecule of claim 147, wherein the nucleic acid molecule is up to about 5,000 basepairs in length.

149. An isolated nucleic acid molecule comprising a nucleic acid sequence that encodes a P-TEFb large subunit protein that exhibits at least 90% identity to the amino acid sequence set forth in SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50, wherein said P-TEFb large subunit protein binds to a P-TEFb kinase subunit protein to form a P-TEFb enzyme complex that promotes transcription elongation.

150. The isolated nucleic acid molecule of claim 149, wherein the encoded polypeptide exhibits between 91% and about 95% identity to the amino acid sequence set forth in SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

151. The isolated nucleic acid molecule of claim 150, wherein the encoded polypeptide exhibits between 96% and about 99% identity to the amino acid sequence set forth in SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

152. (Amended) An isolated nucleic acid molecule comprising:

- (a) a first nucleic acid sequence that encodes a P-TEFb small subunit protein that has kinase activity and binds to a P-TEFb large subunit protein to form a P-TEFb enzyme complex that promotes transcription elongation, wherein said P-TEFb small subunit protein exhibits at least 90% identity to the amino acid sequence set forth in SEQ ID NO:2 or SEQ ID NO:6; and
- (b) a second nucleic acid sequence that encodes a P-TEFb large subunit protein that binds to a P-TEFb kinase subunit protein to form a P-TEFb enzyme complex that promotes transcription elongation, wherein said P-TEFb large subunit protein exhibits at least 90% identity to the amino acid sequence set forth in SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

153. The isolated nucleic acid molecule of claim 152, wherein said first nucleic acid sequence encodes a polypeptide having the amino acid sequence of SEQ ID NO:6.

154. The isolated nucleic acid molecule of claim 152, wherein said second nucleic acid sequence encodes a polypeptide that has the amino acid sequence of SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

155. The isolated nucleic acid molecule of claim 154, wherein said second nucleic acid sequence has the nucleotide sequence of SEQ ID NO:44, SEQ ID NO:46 or SEQ ID NO:49.

156. The isolated nucleic acid molecule of claim 152, wherein said first nucleic acid sequence has the nucleotide sequence of SEQ ID NO:5 and wherein said second nucleic acid sequence has the nucleotide sequence of SEQ ID NO:44, SEQ ID NO:46 or SEQ ID NO:49.

157. (Amended) An expression system comprising:

- (a) a first expression unit comprising, under the transcriptional control of a promoter, a first nucleic acid sequence that encodes a P-TEFb small subunit protein that has kinase activity and binds to a P-TEFb large subunit protein to form a P-TEFb enzyme complex that promotes transcription elongation, wherein said P-TEFb small subunit protein exhibits at least 90% identity to the amino acid sequence set forth in SEQ ID NO:2 or SEQ ID NO:6; and
- (b) a second expression unit comprising, under the transcriptional control of a promoter, a second nucleic acid sequence as defined in claim 137 or claim 149.

158. The expression system of claim 157, wherein said first expression unit comprises a first nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least about 18 amino acids from SEQ ID NO:2 or SEQ ID NO:6.

159. The expression system of claim 158, wherein said first expression unit comprises a first nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least about 20 amino acids from.

160. The expression system of claim 159, wherein said first expression unit comprises a first nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least about 50 amino acids from SEQ ID NO:2 or SEQ ID NO:6.

161. The expression system of claim 160, wherein said first expression unit comprises a first nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least about 100 amino acids from SEQ ID NO:2 or SEQ ID NO:6.

162. The expression system of claim 161, wherein said first expression unit comprises a first nucleic acid sequence that encodes a polypeptide that has the amino acid sequence of SEQ ID NO:2.

163. The expression system of claim 161, wherein said first expression unit comprises a first nucleic acid sequence that encodes a polypeptide that has the amino acid sequence of SEQ ID NO:6.

164. (Amended) The expression system of claim 157, wherein said second expression unit comprises a second nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least 16 amino acids from SEQ ID NO:4, of at least 20 amino acids from SEQ ID NO:45, of at least 20 amino acids from SEQ ID NO:47 or of at least 125 amino acids from SEQ ID NO:50.

167. (Amended) The expression system of claim 166, wherein said second expression unit comprises a second nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least about 50 amino acids from SEQ ID NO:4, SEQ ID NO:45 or SEQ ID NO:47.

168. (Amended) The expression system of claim 167, wherein said second expression unit comprises a second nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least about 100 amino acids from SEQ ID NO:4, SEQ ID NO:45 or SEQ ID NO:47.

169. The expression system of claim 168, wherein said second expression unit comprises a second nucleic acid sequence that encodes a polypeptide that has the amino acid sequence of SEQ ID NO:4.

170. The expression system of claim 168, wherein said second expression unit comprises a second nucleic acid sequence that encodes a polypeptide that has the amino acid sequence of SEQ ID NO:45.

171. The expression system of claim 168, wherein said second expression unit comprises a second nucleic acid sequence that encodes a polypeptide that has the amino acid sequence of SEQ ID NO:47.

172. The expression system of claim 168, wherein said second expression unit comprises a second nucleic acid sequence that encodes a polypeptide that has the amino acid sequence of SEQ ID NO:50.

174. (Amended) The expression system of claim 168, wherein said second expression unit comprises a second nucleic acid sequence that has the nucleotide sequence of SEQ ID NO:44.

175. (Amended) The expression system of claim 168, wherein said second expression unit comprises a second nucleic acid sequence that has the nucleotide sequence of SEQ ID NO:46.

176. (Amended) The expression system of claim 168, wherein said second expression unit comprises a second nucleic acid sequence that has the nucleotide sequence of SEQ ID NO:49.

177. (Amended) The expression system of claim 157, wherein said second expression unit comprises a second nucleic acid sequence that encodes a polypeptide that exhibits between 91% and about 95% identity to the amino acid sequence set forth in SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

178. The expression system of claim 157, wherein said first and said second expression units are comprised in a single expression vector.

179. The expression system of claim 157, wherein said first and said second expression units are each comprised in a separate expression vector.

180. The expression system of claim 157, wherein said expression system is comprised within a recombinant host cell.

181. (Amended) An expression system comprising:

- (a) a first expression unit comprising, under the transcriptional control of a promoter, a first nucleic acid sequence that encodes a polypeptide and that comprises the nucleotide sequence of the coding sequence of a cDNA molecule present in a nucleic acid library, wherein the cDNA molecule hybridizes to a probe having the sequence of the complement of SEQ ID NO:1 or SEQ ID NO:5 under conditions of high stringency comprising hybridization in 50% formamide, 5× Denhardts' solution, 5× SSC, 25 mM sodium phosphate, 0.1% SDS and 100 µg/ml of denatured salmon sperm DNA at 42°C for 16 h followed by 1h sequential washes with 0.1× SSC, 0.1% SDS solution at 60°C; and
- (b) a second expression unit comprising, under the transcriptional control of a promoter, a second nucleic acid sequence as defined in claim 137 or claim 149.

182. (Amended) The expression system of claim 181, wherein said first expression unit comprises a first nucleic acid sequence that comprises the nucleotide sequence of the coding sequence of a cDNA molecule present in a nucleic acid library, wherein the cDNA molecule hybridizes to a probe having the sequence of the complement of SEQ ID NO:5 under said conditions of high stringency.

183. (Amended) The expression system of claim 181, wherein said first expression unit comprises a first nucleic acid sequence that comprises the nucleotide sequence of the coding sequence of a cDNA molecule present in a nucleic acid library, wherein the cDNA molecule hybridizes to a probe having the sequence of the complement of the nucleotide sequence from position 115 to position 1327 of SEQ ID NO:1 under said conditions of high stringency.

184. The expression system of claim 181, wherein said first expression unit comprises a first nucleic acid sequence that has the nucleotide sequence of SEQ ID NO:5.

185. (Amended) The expression system of claim 181, wherein said second expression unit comprises a second nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least 16 amino acids from SEQ ID NO:4, of at least 20 amino acids from SEQ ID NO:45, of at least 20 amino acids from SEQ ID NO:47 or of at least 125 amino acids from SEQ ID NO:50.

186. The expression system of claim 185, wherein said second expression unit comprises a second nucleic acid sequence that encodes a polypeptide that has the amino acid sequence of SEQ ID NO:4.

187. The expression system of claim 185, wherein said second expression unit comprises a second nucleic acid sequence that encodes a polypeptide that has the amino acid sequence of SEQ ID NO:45.

188. The expression system of claim 185, wherein said second expression unit comprises a second nucleic acid sequence that encodes a polypeptide that has the amino acid sequence of SEQ ID NO:47.

189. The expression system of claim 185, wherein said second expression unit comprises a second nucleic acid sequence that encodes a polypeptide that has the amino acid sequence of SEQ ID NO:50.

190. (Amended) The expression system of claim 181, wherein said second expression unit comprises a second nucleic acid sequence that encodes a polypeptide and that comprises the nucleotide sequence of the coding sequence of a cDNA molecule present in a nucleic acid library, wherein the cDNA molecule hybridizes to a probe having the sequence of the complement of SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48 under conditions of high stringency comprising hybridization in 50% formamide, 5× Denhardts' solution, 5× SSC, 25 mM sodium phosphate, 0.1% SDS and 100 µg/ml of denatured salmon sperm DNA at 42°C for 16 h followed by 1h sequential washes with 0.1× SSC, 0.1% SDS solution at 60°C.

191. The expression system of claim 190, wherein said second expression unit comprises a second nucleic acid sequence that has the nucleotide sequence of SEQ ID NO:44.

192. The expression system of claim 190, wherein said second expression unit comprises a second nucleic acid sequence that has the nucleotide sequence of SEQ ID NO:46.

193. The expression system of claim 190, wherein said second expression unit comprises a second nucleic acid sequence that has the nucleotide sequence of SEQ ID NO:49.

194. (Amended) The expression system of claim 181, wherein said second expression unit comprises a second nucleic acid sequence that encodes a polypeptide that exhibits between 91% and about 95% identity to the amino acid sequence set forth in SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

195. The expression system of claim 181, wherein said first and said second expression units are comprised in a single expression vector.

196. The expression system of claim 181, wherein said first and said second expression units are each comprised in a separate expression vector.

197. The expression system of claim 181, wherein said expression system is comprised within a recombinant host cell.

198. A recombinant host cell comprising an isolated nucleic acid molecule in accordance with claim 110, claim 113, claim 137, claim 149 or claim 152.

199. The recombinant host cell of claim 198, wherein said cell is a prokaryotic host cell.

200. The recombinant host cell of claim 198, wherein said cell is a eukaryotic host cell.

201. The recombinant host cell of claim 200, wherein said cell is a mammalian host cell.

202. The recombinant host cell of claim 198, wherein said cell further comprises an HIV Tat protein.

203. (Amended) The recombinant host cell of claim 198, wherein said cell comprises an isolated nucleic acid molecule comprising a nucleic acid sequence that encodes:

- (a) a polypeptide having the amino acid sequence of SEQ ID NO:2; or
- (b) a polypeptide that comprises a contiguous sequence of at least 16 amino acids from SEQ ID NO:4, of at least 20 amino acids from SEQ ID NO:45, of at least 20 amino acids from SEQ ID NO:47 or of at least 125 amino acids from SEQ ID NO:50.

204. (Amended) The recombinant host cell of claim 198, wherein said cell comprises an isolated nucleic acid molecule comprising a nucleic acid sequence that encodes a polypeptide that comprises a contiguous sequence of at least 16 amino acids from SEQ ID NO:4, of at least 20 amino acids from SEQ ID NO:45, of at least 20 amino acids from SEQ ID NO:47 or of at least 125 amino acids from SEQ ID NO:50.

205. (Amended) The recombinant host cell of claim 198, wherein said cell comprises an isolated nucleic acid molecule comprising a nucleic acid sequence that encodes a P-TEFb large subunit protein, wherein said P-TEFb large subunit protein binds to a P-TEFb kinase subunit protein to form a P-TEFb enzyme complex that promotes transcription elongation and wherein said nucleic acid molecule comprises the nucleotide sequence of:

the coding sequence of a cDNA molecule present in a nucleic acid library, wherein the cDNA molecule hybridizes to a probe having the sequence of the complement of SEQ ID NO:3, SEQ ID NO:43 or SEQ ID NO:48 under conditions of high stringency comprising hybridization in 50% formamide, 5× Denhardt's solution, 5× SSC, 25 mM sodium phosphate, 0.1% SDS and 100 µg/ml of denatured salmon sperm DNA at 42°C for 16 h followed by 1 h sequential washes with 0.1× SSC, 0.1% SDS solution at 60°C.

206. (Amended) The recombinant host cell of claim 198, wherein said cell comprises an isolated nucleic acid molecule comprising a nucleic acid sequence that encodes a P-TEFb large subunit protein that exhibits at least 90% identity to the amino acid sequence set forth in SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50, wherein said P-TEFb large subunit protein binds to a P-TEFb kinase subunit protein to form a P-TEFb enzyme complex that promotes transcription elongation.

207. (Amended) The recombinant host cell of claim 198, wherein said cell comprises an isolated nucleic acid molecule comprising:

- (a) a first nucleic acid sequence that encodes a P-TEFb small subunit protein that has kinase activity and binds to a P-TEFb large subunit protein to form a P-TEFb enzyme complex that promotes transcription elongation, wherein said P-TEFb small subunit protein exhibits at least 90% identity to the amino acid sequence set forth in SEQ ID NO:2 or SEQ ID NO:6; and
- (b) a second nucleic acid sequence that encodes a P-TEFb large subunit protein that binds to a P-TEFb kinase subunit protein to form a P-TEFb enzyme complex that promotes transcription elongation, wherein said P-TEFb large subunit protein exhibits at least 90% identity to the amino acid sequence set forth in SEQ ID NO:4, SEQ ID NO:45, SEQ ID NO:47 or SEQ ID NO:50.

208. A recombinant host cell that comprises an expression system in accordance with claim 157 or claim 181.

211. The recombinant host cell of claim 208, wherein said cell is a prokaryotic host cell.

212. The recombinant host cell of claim 208, wherein said cell is a eukaryotic host cell.

213. The recombinant host cell of claim 212, wherein said cell is a mammalian host cell.

214. The recombinant host cell of claim 208, wherein said cell further comprises an HIV Tat protein.

215. The recombinant host cell of claim 208, wherein said expression system comprises a first and second expression unit comprised in a single expression vector.

216. The recombinant host cell of claim 208, wherein said expression system comprises a first and second expression unit each comprised in a separate expression vector.